

ABSTRACT OF THE DISCLOSURE**SWITCHING POWER CONVERTER AND METHOD OF CONTROLLING OUTPUT VOLTAGE THEREOF USING PREDICTIVE SENSING OF MAGNETIC FLUX**

5 A switching power converter and method of controlling an output voltage thereof using predictive sensing of magnetic flux provides a low-cost switching power converter via primary-side control using a primary-side winding. The power converter has improved immunity to parasitic phenomena and other variations
10 within the power converter components. An integrator is used to generate a voltage analog that represents magnetic flux within a power magnetic element via an integration of a voltage on a primary-side winding of the power magnetic element. A detection circuit detects the end of a half-cycle of post-conduction
15 resonance that occurs in the power magnetic element subsequent to the energy level in the power magnetic element reaching zero. The voltage of the integrator is stored at the end of the post-conduction resonance half-cycle and is used to determine a sampling point prior to or equal to the start of post-conduction
20 resonance in a subsequent switching cycle of the power converter (which is the predicted zero-energy storage point of the power magnetic element). The primary-side winding voltage is then sampled at the sampling point, providing an indication of the output voltage of the power converter. By predicting the zero-
25 magnetic-energy storage point, the output voltage of a power

converter operating in discontinuous or boundary conduction mode can be accurately controlled without being affected by parasitic phenomena or variations in circuit performance over time, input voltage and temperature.